Four Digit, Programmable Displays with Alarms and Analogue Output

PMX400TMP Temperature Display
PMX400HZX Frequency Display/Tachometer

- Bright four digit LED display in engineering units
- Up to 4 alarm channels
- Optional analogue output
- AC or DC powered
- Fully Isolated
- LED alarm status indication
- 1/8 DIN standard front with IP65 rating
- Integral power supply for active input devices
- Indicate and change setpoints in engineering units
- Full on–site programming from the front panel keypad

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PMX400 Series Displays

PMX400 Series

The PMX400 series consists of two models:

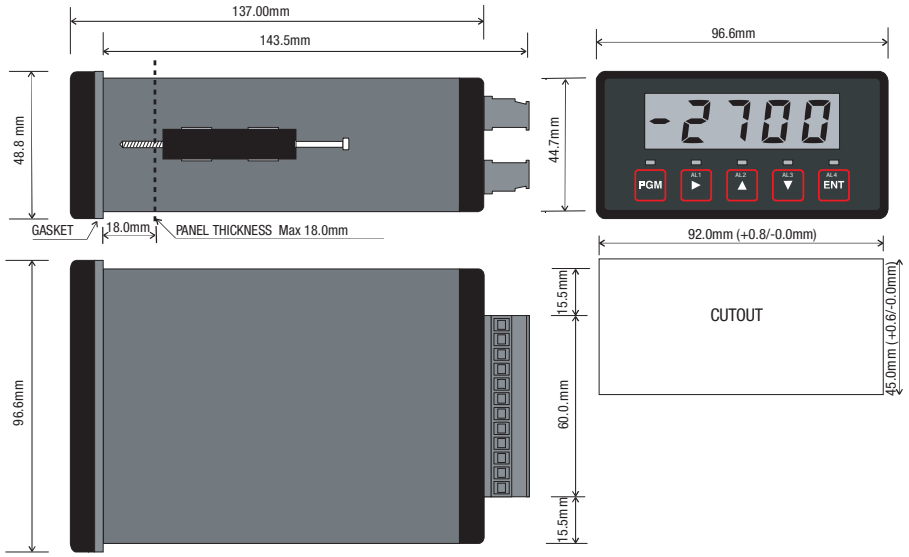
- Temperature display
- Frequency display/Tachometer

Each model supports a wide variety of input signal types and ranges.

The analogue and alarm outputs are optional, except for the HZX which comes with two open collector alarms as standard. Units can be ordered with two or four SPDT relay channels.

Alarm channel four can be set up as a group/siren alarm which operates according to the state of the other three alarms.

Note: if your process measurement is represented by a current or voltage signal you may be interested in the PMX420 Series displays.



General Technical Data

Display	
Type	Full 4 digit, red 14.2 mm LED
Scaling	To display in % or engineering units
Display range	–9999 to 9999
Status indicators	Alarm ch 1–4 and key status
Analogue output (optional)	
Type	Analogue current/voltage
Scaling	To represent any portion of the input range
Range	Any range inside the limits 0–22 mA or 0–11 V
Current drive	Up to 850Ω load (at 20mA)
Voltage drive	True voltage source (up to 20mA)
Output ripple	Less than 20mV P/P
Output action	Direct/reverse
Input filtering	
Type	Digital filter (programmable)
Damping factor	1 to 99 (default = 2)
General	
Accuracy	Typically ±0.1% of span
Linearity	Better than 0.05%
Repeatability	±0.02% of span
Temperature drift	Less than 0.02% span/°C
Long term drift	0.1% per 10,000 hours
Frequency response	–3dB point = 5Hz
Response time	300 mS for 10–90% output change (digital filtering = 1)
Insulation Co-ordination	
Ports	Input / Output / Case
Rated Insulation Voltage	300Veff
Overvoltage Category	III
Impulse Withstand	4kV (1.2 / 50)
Environmental Conditions	
Operating temperature	0 to 60 °C
Storage temperature	–25 to +70 °C
Pollution Degree	2
Relative humidity	10–90% (non–condensing)
Housing	
Type	Panel mount
Front bezel	1/8 DIN format with IP65 rating

Approvals	**Mark**	
DC Powered Units only	cULus LISTED	E205105
DC Powered Units only	CE	LV Directive EMC

Standard
CAN/CSA C22.2 No. 142-M1987, 1st Edition UL508, 17th Edition
EN50178:1998 BS EN 61326:1998 + A2

General set–up menu options

Display		
HIBr	Display brightness	High or Low
dP=	Display Decimal Point	0.000 to 0000
dLO=	Display low	[Value]
dHI=	Display high	[Value]
Inputs		
IP=I	Input type	See individual units
IPL=	Input range low	[Value]
IPH=	Input range high	[Value]
dF=2	Input filtering	1 to 99
Analogue output		
AOPY	Analogue Output	Enable/disable
OPL=	Output low	[Value]
OPH=	Output high	[Value]
OP=d	Output sense	Direct or reversed
Alarms 1–4 (general options)		
A12Y	Alarms 1 & 2	Enable/disable
A34Y	Alarms 3 & 4	Enable/disable
SECY	Setpoint security	On–the–fly–changes or locked
nOr	Alarm reset mode	Manual or Automatic
Alarm options (set for each channel)		
AInE	Output Coil energisation	Normally Energised or De–energised
A1=H	Alarm Type	High/Low (and Siren/ Group for channel four only)
SP1= 50.00	Setpoint e.g., 50.00 units	According to display range
db1= 10.00	Introduces deadband e.g., 10.00 units	From 1 count to display range
dL1= 20	Alarm Timer Delay e.g., 20 seconds	0–4200s (default = 0s)

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PMX400TMP

- Accepts thermocouple, RTD or mV inputs
- Total sensor diagnostics
- Indicates temperature in °C or °F
- Configure without the need to calibrate
- Indicates setpoints in °C or °F
- Automatic CJC for thermocouple inputs
- Automatic lead length compensation for RTD inputs

Options

The basic software will control the optional analogue outputs and alarm channels without modification. So, to retrofit an option, you can simply add a card, calibrate and setup for your installation from the front panel.

Technical Data

Display	
Scaling	To display in °C, °F or mV
Inputs	
Type	Thermocouple, PT100 RTD or mV
Standard ranges:	Any range inside limits shown (no recalibration required)
J Type Thermocouple	–50°C (–58°F) to 870°C (1598°F)
K Type Thermocouple	–50°C (–58°F) to 1372°C (2502°F)
N Type Thermocouple	–50°C (–58°F) to 1300°C (2372°F)
T Type Thermocouple	–50°C (–58°F) to 400°C (752°F)
E Type Thermocouple	–50°C (–58°F) to 700°C (1292°F)
B Type Thermocouple	0°C (32°F) to 1820°C (3308°F)
S Type Thermocouple	–50°C (–58°F) to 1768°C (3214°F)
R Type Thermocouple	–50°C (–58°F) to 1768°C (3214°F)
mV signals	–200.00mV to 200.00mV
RTD (Pt100)	–220.0°C (–364.0°F) to 820.0°C (1508.0°F)
Cold junction compensation for thermocouple inputs	Automatic
Lead length compensation for RTD inputs	Automatic
Power supply	
Type	AC or DC powered
AC (selectable)	100 – 132 Vac (47–63Hz) or 200 – 264 Vac (47–63Hz)
DC	20–28Vdc (others on request)
Power usage	AC 6VA or 6W at 24Vdc
Alarm ouputs (all channels)	
Type	SPDT relay contacts
Rating	3A at 240Vac (resistive) 3A at 24Vdc (resistive)
Isolation	1kV between channels
General	
Sampling rate	5 samples per second
Options	
/AO	With analogue output fitted
/4RO	With all alarm channels fitted
Notes	

Ordering Information

Type (Model Supply/Options)	Cat. No.
PMX400TMP 24Vdc	7940017862
PMX400TMP 24Vdc/4RO/AO	7940012968

For other ranges please specify PMX400TMP 1/2 where:
1 = Supply and 2 = Options

Connections

Terminal	Signal	
1	Neutral / –	Power supply
2	Live / +	
3	Output +	Analogue output (/AO option only)
4	Current –	
5	Voltage –	
6	Security Link	Link to allow access to the set-up mode (normally not connected)
7	Security Link	
8	CJC Board (white mark alligns with terminal 11)	Thermocouple inputs
9		
10		
11		
12	Not used	
8	Not used	RTD inputs
9		
10	B	
11	B_{sense}	
12	A	
8	Not used	Millivolt inputs
9		
10	mV input –	
11	mV input +	
12	Not used	
13	Normally Closed	Alarm Channel One (/4RO option only)
14	Common	
15	Normally Open	
16	Normally Closed	Alarm Channel Two (/4RO option only)
17	Common	
18	Normally Open	
19	Normally Closed	Alarm Channel Three (/4RO option only)
10	Common	
21	Normally Open	
22	Normally Closed	Alarm Channel Four (/4RO option only)
23	Common	
24	Normally Open	

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PMX400HZX

- Measures frequency of signals from industrial sensors
- Provides power for active input devices
- Two alarm channels
- Debounce for contact closure inputs

Options

The basic software will control the optional analogue outputs and alarm channels without modification. So, to retrofit an option, you can simply add a card, calibrate and setup for your installation from the front panel.

Inputs

Inputs can be taken from many sources, including:

- NAMUR sensors
- 3–wire PNP/NPN sensors
- PNP/NPN open collector outputs
- TTL logic
- Solid State Switches
- Low and high voltage pulses
- Volt–free contacts

Technical Data

Display	
Scaling	To display in engineering units
Inputs	
Type	Programmable frequency
Range	Any range within the limits shown

Span range	Zero range	Resolution
0 to 9.999Hz	0 to 9.998Hz	0.001Hz
0 to 99.99Hz	0 to 99.98Hz	0.01Hz
0 to 999.9Hz	0 to 999.8Hz	0.1Hz
0 to 9999Hz	0 to 9998Hz	1Hz

Sensor power output	Nominally 12 Vdc (to 25 mA) – others on request (/FPS option)
Input voltage range	50 mVac to 250 Vac or 3 Vdc to 250 Vdc
Power supply	
Type	AC or DC powered
AC (selectable)	100 – 132 Vac (47–63Hz) or 200 – 264 Vac (47–63Hz)
DC	24 Vdc ±10% (others on request)
Power usage	AC 6VA or 6W at 24Vdc
Alarm ouputs (channels one and two)	
Type	NPN open collector transistor type
Operation	Switched to 0 V when “on“
Rating	to 200mA “on“ state current or 50 Vdc “off“ state voltage Note: back–emf protection must be used for inductive loads
Isolation	Common negative rail
Alarm ouputs (channels three and four)	
Type	SPDT relay contacts
Rating	3A at 240Vac (resistive) 3A at 24Vdc (resistive)
Isolation	1kV between channels
General	
Response time	220mS (10–90mS, df=1)
Options	
/AO	With analogue output fitted
/RO	With alarm channels three and four fitted
/FPS	Custom input sensor supply voltage. State voltage, e.g., PMX400HZX/.../FPS/24Vdc

Connections

Terminal	Signal	
1	Neutral / –	Power supply
2	Live / +	
3	Output +	Analogue output (/AO option only)
4	Ouput –	
5	Common	Alarm Channel One and Alarm Channel Two
6	Channel 1	
7	Channel 2	
8	Security Link	Inputs/Security link Link 12 & 8 for set-up mode (otherwise leave disconnected)
9	Pull up/down	
10	Signal – / 0 V	
11	Signal +	
12	+12Vdc out	
See user manual for full explanation of input connections		
13	Normally Closed	Alarm Channel Three (/RO option only)
14	Common	
15	Normally Open	
16	Normally Closed	Alarm Channel Four (/RO option only)
17	Common	
18	Normally Open	

Ordering Information

Type (Model Supply/Options)	Cat. No.
PMX400HZX 24Vdc	7940015595
PMX400HZX 24Vdc/RO/AO	7940011979

For other ranges please specify PMX400HZX 1/2 where:
1 = Supply and 2 = Options

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